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United States
Department of Agriculture
Forest Service
Pacific Northwest
Region
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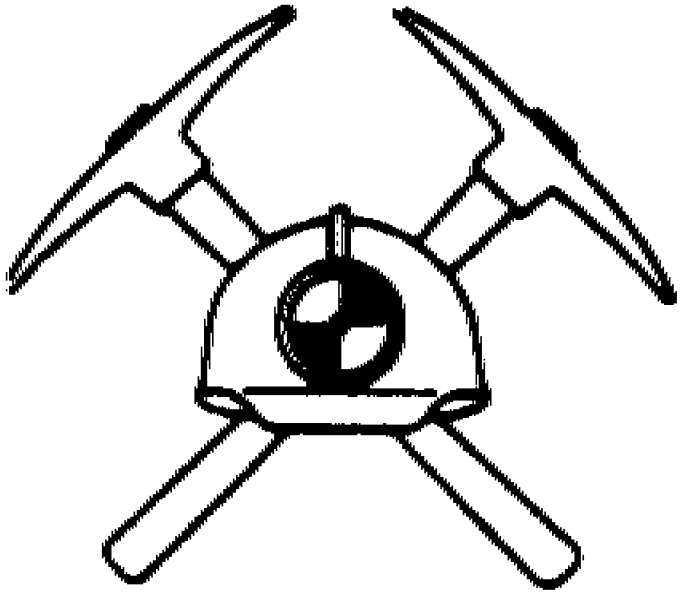
NICORE
MINING PLAN OF OPERATIONS



RECORD OF DECISION

INTRODUCTION

Mining operations on public lands, approved under the 1872 General Mining Law, are becoming increasingly complex and controversial. During the past decade, public land managers have faced a plethora of conflicting or contradictory laws, regulations, policies and plans that both encourage minerals development and require environmental protection. The public and scientific awareness of the value of wild land, wild places and healthy ecosystems has increased exponentially during the past decade. As that awareness grows, so do the conflicts inherent with mining on public lands. Many Americans believe that the Mining Law needs to be updated and revised to reflect the changed conditions and current social values as we enter a new century, however the United States Congress has not chosen to change the law.

This Record of Decision and its accompanying Final Environmental Impact Statement highlight the conflicting laws, policies and values as they relate to a miner's proposal to develop his claims within the Rough and Ready Creek Watershed. Southwestern Oregon is among the most botanically diverse areas within the continental United States, and the Rough and Ready Creek Watershed is critical for many endangered, threatened, sensitive and rare species of plants and fish. The area is largely roadless, with only primitive, low standard roads penetrating the area. Road development and use could impact many endemic plant species. Port-Orford-cedar, a tree whose natural range is limited to Southwestern Oregon and Northwestern California, grows in the watershed. A fatal root disease affects Port-Orford-cedar throughout its range, however, the population in Rough and Ready Creek watershed is not currently infested with the disease pathogen. Road development is a significant factor in the spread of the disease; thus, development of mining access into the watershed could increase the risk of introducing the disease. The waters of Rough and Ready Creek are exceptionally clear and remain clear during winter storms that turn other creeks muddy. Based on these and other factors, the stream was found eligible for inclusion in the National System of Wild and Scenic Rivers.

Juxtaposed with the deleterious impacts of road development and mining in an area of incredible natural values is a mining proposal that is seemingly uneconomical and speculative. The mining proponent has provided little credible evidence that the undertaking is a reasonable or prudent venture. This Record of Decision (ROD) details the decision, how the public issues were resolved, the alternatives considered and their projected environmental consequences, and other factors.

The choices are not simple, the issues are not always clear, and considerable uncertainty exists about the proposal. The proponent has provided limited information and no data refuting indications that the project is uneconomical. This introduction is a brief overview of some of the factors I considered in making my decision. I have attempted to strike a balance in the face of these factors.

DECISION

I have selected Alternative 9 as described in the Final Environmental Impact Statement (FEIS) for NICORE Mining Plan of Operations. This decision authorizes approval of a Plan of Operations when certain requirements are met. The mining proponent must revise his Plan of Operations to contain all of the stipulations included in Alternative 9 or otherwise agree in writing to comply with these stipulations (these are detailed in this section of the Record of Decision).

Alternative 9 allows the mining proponent to sample previously disturbed mine sites in order to resolve the operational and economic uncertainties related to the project. Under such a plan, removal of 5,000 tons of ore, requiring disturbance of approximately 0.5 acres within four mine sites, will be approved, subject to the following:

-The specific sample sites will be identified by the mining proponent and approved by the Forest Service (botanists and biologists must review the sites for Survey and Manage species requirements; sample sites must be free of these and other rare or special status species).

-The mining proponent must specify where the samples will be processed and the testing methods that will be used to analyze the material. If construction of a new ore processing facility is needed, no ground disturbance will be approved before the plant is capable of processing the mined material.

-Additional environmental analysis may be required before any plan is approved, depending on the location of the processing facility and the potential effects of processing the sample. Additional analysis may be required by the Bureau of Land Management (BLM) before the proposed stockpiling or other processing on BLM-administered lands is approved.

This decision does NOT approve any significant road improvement on National Forest lands within the analysis area. Approved road work will be limited to moving rocks, clearing or leveling the road surface, and treatments to reduce potential sediment delivery. Equipment must be flown into all mine sites, except to Mine Site B, where a limited number of trips will be approved on roads 4402-461 and 4402-445 (in the FEIS this route is called the “Rock Creek Route”) for transporting tracked equipment to Mine Site B (the number of trips approved will be negotiated with the mining proponent). The Rock Creek Route will not be improved sufficiently to allow safe or frequent travel with trucks. Personnel will need to be flown in to all mine sites. Sampled ore will need to be hauled in helicopter buckets from all sites.

This Record of Decision (ROD) does NOT approve development of a stockpile site within lands administrated by Bureau of Land Management (see Alternative 9 Map in the FEIS). The Bureau of Land Management will issue their own decision documentation regarding the Plan of Operations for stockpiling. Questions should be directed to Matt Craddock of the BLM
(541-770-7700).

The approved Plan of Operations will permit the proponent to remove ore samples for up to five years. Results from the sampling will be used to determine the requirements for reagents and fluxes, additives, configuration of processing components, volume and composition of waste materials and the grade and volume of products. If the bulk testing proves positive and shows a reasonable prospect of technically and economically developing the project, the proponent may submit a plan for full scale development. The new plan would be subject to appropriate further analysis.

No Plan of Operations beyond the limits set for Alternative 9 will be accepted without verifiable sampling results. If the mining proponent elects not to submit a Plan of Operation to implement Alternative 9, this decision defaults to the "No Action" alternative. Any future plan for full-scale development must include specific information regarding drilling and clearing requirements, mining, hauling, milling and processing needs, waste disposal requirements, water and power needs, requirements for other ancillary facilities and reclamation.

The Plan of Operations will adopt all of the *Mitigation Measures* described in the FEIS that apply to Alternative 9 on National Forest (listed below). The goals, costs, and effectiveness of the mitigation measures, including details about monitoring, are at pages 28 through 39 in the FEIS. These details are incorporated into the following list. These mitigation measures are all practicable means to avoid or minimize environmental harm.

- All necessary permits are the responsibility of the mining proponent and must be obtained from applicable state, federal, and other agencies prior to annual operations.
- A reclamation plan is a required part of the Plan of Operations and must be completed prior to approval. At a minimum, it will address the drainage and erosion control at mine sites; restoration of native vegetation at mine sites; storm proofing and erosion control on access roads and helicopter landings; and clean up of the mine sites. Stability analysis for Mine Site D is required, if samples are going to be taken there. The mining proponent must use information in the FEIS to prepare the plan. Agency specialists will be available for consultation.
- A reclamation bond will be required. The actual amount of the bond will be established by the Oregon Department of Geology and Mineral Industries (DOGAMI) in cooperation with the Forest Service.
- Adequate sanitation facilities will be required at all work sites. A sanitation plan will be required subject to agency approval.
- Best Management Practices will be used in all ground disturbing activities.
- A fuel transportation, storage and spill contingency plan is a required part of the Plan of Operations and must be completed prior to approval.
- FEIS Appendix J is a Port-Orford-cedar Root Disease Containment Strategy. It will be incorporated into the final Plan of Operations. It includes limitations on operating season, washing of any ground-based equipment and vehicles, road closures, restrictions on water use, and monitoring.
- Public and worker safety will be considered in the Plan of Operation. An annual safety plan will be required. No public use of areas near the helicopter flight path will be allowed during operations. The proponent is responsible for posting and maintaining the closure.
- Helicopter flights will be limited to between 7am and 7 pm. No flights will be approved on Sundays or national holidays.
- Dust abatement may be required to facilitate safe helicopter operations. Water source must be approved by the Forest Service.

, Sensitive plants on the 4402-461 and 4402-445 roads will be flagged and disturbance minimized. No off road use will be approved along the route. Equipment use and parking areas will be established to avoid unnecessary disturbance to any rare or special status species.

, A *Monitoring Plan* will be required as part of the Plan of Operations, and must be prepared and financed by the mining proponent, subject to Forest Service approval (see Chapter Two of the FEIS for more information). The monitoring plan will define what actions and environmental conditions will be monitored, data collection and reporting time frames, who is responsible for monitoring, and adaptive actions to take in response to monitoring findings. At a minimum, the plan will cover the following elements:

- ! Adherence to the Plan of Operations
- ! Water Quality
- ! Fisheries
- ! Port-Orford-cedar
- ! Noxious Weeds
- ! Sensitive and Endangered Plants
- ! Effects on Residents
- ! Air Quality
- ! Wildlife

OTHER ALTERNATIVES CONSIDERED IN THE FEIS

The other alternatives considered in detail in the FEIS are: No Action, the Proposed Action, and Alternatives 6, 7, 8, 10, and 11. Alternatives 6, 7, 8, 10, and 11 were designed to resolve some of the issues identified with the Proposed Action and include mitigation measures that would reduce, but not eliminate, adverse impacts. The Proposed Action and Alternatives 6, 7, 8, 10 and 11 are collectively referred to as full scale mining alternatives in this ROD.

No Action provides a baseline for comparison of action alternatives and would not allow any mining or sampling activity. No Plan of Operations would be approved. No Action assumes that current conditions continue indefinitely.

The Proposed Action represented the proposed Plan of Operations submitted by the mining proponent. It included about 0.5 miles of road construction and 7.5 miles of reconstruction to access four mining sites and; the development of 35 acres of nickel laterite mine pits (4 sites); mining about 3.5 acres per year for 10 years; and ore haul and related road use of a 14-mile haul route entirely on public lands. Most of the access route and all of the pits were on lands administered by the Siskiyou National Forest. The access route followed old, low-standard mining roads that do not meet current standards for safety and aquatic conservation. The Proposed Action included some road design, reclamation and mitigation measures. It included several fords across Rough and Ready Creek, including six in the mainstem, one in the South Fork, and nine on tributaries.

Alternative 6 used the existing Rough and Ready Creek road (private road). It required approximately 3.8 miles of new road construction and 6.1 miles reconstruction to access the four mine sites. The entire haul route (15.5 miles) was designed to accommodate street legal haul vehicles. Alternative 6 reduced the number of stream crossings to three major and three tributary crossings, and added design measures to meet standards for safety and aquatic conservation. Mitigation described in the Proposed Action and additional mitigation included for all action alternatives applied to Alternative 6 (see pages 28 through 39 in the FEIS).

Alternative 7 required approximately 4.2 miles new road construction and 5.5 miles reconstruction to access the four sites. Total haul route was about 15.4 miles. Alternative 7 reduced the number of stream crossings to four major and two tributary crossings, and added design measures to meet standards for safety and aquatic conservation. Mitigation described in the Proposed Action and additional mitigation included for all action alternatives applied to Alternative 7 (see pages 28 through 39 in the FEIS).

Alternative 8 required approximately 4.2 miles new road construction and 4.9 miles reconstruction to access three of the four mine sites (Alternative 8 did not include access to Mine Site D). Total haul route was about 13.3 miles. Alternative 8 reduced the number of stream crossings to two major and two tributary crossings, and added design measures to meet standards for safety and aquatic conservation. Mitigation described in the Proposed Action and additional mitigation included for all action alternatives applied to Alternative 8 (see pages 28 through 39 in the FEIS).

Alternative 10 required approximately 1.4 miles new road construction and 8.8 miles reconstruction to access all four mining sites. Total haul route was about 14.3 miles. Alternative 10 reduced the number of stream crossings to one major and one tributary crossing, and added design measures to meet standards for safety and aquatic conservation. Mitigation described in the Proposed Action and additional mitigation included for all action alternatives applied to Alternative 10 (see pages 28 through 39 in the FEIS). Alternative 10 included a cable system to haul ore from Mine Site D.

Alternative 11 required approximately 1.25 miles new road construction and 6.0 miles reconstruction to access three of the four mine sites. Total haul route was about 9.6 miles. Alternative 11 reduced the number of stream crossings to one major and three tributary crossings, and added design measures to meet standards for safety and aquatic conservation. Mitigation described in the Proposed Action and additional mitigation included for all action alternatives applied to Alternative 11 (see pages 28 through 39 in the FEIS). Alternative 11 included a cable system to haul ore from Mine Site D, and eliminated access to Mine Site A.

DECISION RATIONALE SUMMARY

My decision is based on a thorough review of the FEIS, the analysis file documents, public comments, and legal considerations. The following summary is intended to highlight the major reasons for this decision, however, other factors were also considered and are discussed elsewhere in this ROD.

- The botanical diversity and watershed resource values potentially affected are extremely high. Southwestern Oregon is among the most botanically diverse areas within the continental United States, and the Rough and Ready Creek Watershed is critical for many endangered, threatened, sensitive and rare species of plants and fish.
- Port-Orford-cedar, a tree whose natural range is limited to Southwestern Oregon and Northwestern California, grows in the watershed. A root disease kills Port-Orford-cedar

throughout its range, however, the population in Rough and Ready Creek watershed is not currently infested with the disease pathogen. Road development is a significant factor in the spread of the disease; thus, development of mining access into the watershed could increase the risk of introducing the disease.

U The waters of Rough and Ready Creek are exceptionally clear and remain clear during winter storms that turn other creeks muddy. Road development and use could lead to sediment delivery and other adverse effects to the creek.

U Based on the botanical diversity and unique geology, the stream was found eligible for inclusion in the National System of Wild and Scenic Rivers. Road access requirements for full scale mining would impact Outstandingly Remarkable Values and could degrade the potential scenic river classifaction.

U The proposed operations are located within a large roadless area, the South Kalmiopsis. Unroaded, undeveloped areas are the stronghold for many of the values cherished on the National Forests by many people.

U Damage to these valued resources could not be completely avoided if full scale mining (and road access) were implemented, even with the mitigation measures discussed in the FEIS. Full scale mining would irretrievably alter the character of the landscape and resources.

U An overwhelming volume of public comments asked the Responsible Officials to deny the proposed Plan of Operations[1].

U All information on the record about the value of the minerals within the proposed mine sites indicates that production costs far exceed potential revenue. The proponent has not provided credible evidence to refute this information.

U The proponent has not identified any facility that would accept and process the ore, nor has he provided reasonable evidence that a suitable facility exists. There is no known commercial smelter in the United States currently available to process the ore.

U The purpose of the 36 CFR 228 Regulations is to ensure that mineral exploration and development is conducted so as to minimize adverse environmental impacts on surface resources.

U Forest Service policy is to encourage and facilitate the exploration and orderly development of mineral resources.

[1] Many people requested that the area be withdrawn from mineral entry, require valid existing rights determination before approving any Plan of Operations, select No Action, or take other actions to eliminate mining in the Rough and Ready Creek watershed and the South Kalmiopsis Roadless Area. Of approximately 5,000 letters, fewer than one percent supported mining in the area.

- I did not select the Proposed Action or any other full scale mining alternative because the economic and operational uncertainties were too great, compared to the extremely high scientific, social, and ecological values that would be placed at risk.

- No Action was not selected, because it would not have resolved the uncertainties related to this project, and it would have denied the mining proponent the right to continue to develop his project.

I am obligated to consider the mining proponent's Plan of Operations and determine whether surface resources are adequately protected and to consider whether the Plan of Operations represents a reasonable step in the orderly development of minerals. Bulk sampling to resolve operational and economic issues is considered reasonable for this stage of the project. Under his proposed Plan of Operations, the mining proponent indicated that the project is phased, and that a 5,000 ton sample would occur prior to full scale mining. Alternative 9 would approve this phase of the proposed plan and provide for continuing exploration and analysis of the deposit, while protecting the outstanding surface resources associated with Rough and Ready Creek.

No Action was not selected, because it would not have resolved the uncertainties related to this project, and it would have denied the mining proponent the right to continue to develop his project. The area is subject to entry under the mining law, and citizens have a right to explore the mineral resources there. The Proposed Action or any other full scale mining alternative was not selected because given the extremely high scientific, social, and ecological values that would be placed at risk, and the economic and operational uncertainties associated with the project, full-scale development does not appear to be justified.

The following sections of this ROD provide further rationale for the decision, including discussions about how the different alternatives responded to the issues analyzed in the FEIS and disclosure of the environmentally preferable alternative.

DECISION RATIONALE - PURPOSE AND NEED

In making this decision, I considered the purpose and need for action (see Chapter One of the FEIS), the analysis contained in the FEIS, the laws and regulations pertaining to mining and protection of the environment, and the public comment received throughout the analysis. The need for action is to respond to the mining proponent's proposed Plan of Operation (per 36 CFR 228.5 regulations). The purpose is to determine reasonable measures to protect federal surface resources in accordance with the following laws and regulations:

Clean Water Act and Clean Air Act - The Forest Service places a high priority on clean water and watershed restoration. Rough and Ready Creek is a water-quality limited system. Clean Air Act regulations apply to this project.

Wild and Scenic Rivers Act - Parts of Rough and Ready Creek have been found eligible for inclusion into the federal Wild and Scenic River system. The potentially outstanding remarkable values and highest potential classification of Rough and Ready Creek must be maintained, pending a formal suitability determination**.**

Endangered Species Act of 1973 - The viability of sensitive, threatened, and endangered species need to be maintained. Several rare plant species occur within the analysis area, including one plant species listed as Endangered. Threatened and sensitive fish species are found in Rough and Ready Creek.

The 1872 General Mining Laws - "...all valuable mineral deposits in lands belonging to the United States, both surveyed and unsurveyed, are hereby declared to be free and open to exploration and purchase..."

The Organic Administration Act of 1897 - "...any mineral lands in any national forest which have been or which may be shown to be such, and subject to entry under the existing mining laws of the United States and rules and regulations applying thereto, shall continue to be subject to such location and entry, notwithstanding any provisions herein contained."

Mining and Minerals Policy Act of 1970 - "...it is the continuing policy of the Federal Government in the national interest to foster and encourage private enterprise in (1) the development of economically sound and stable domestic mining, minerals, metal and mineral reclamation industries, (2) the orderly and economic development of domestic mineral resources, reserves, and reclamation of metals and minerals to help assure satisfactory industrial, security and environmental needs..."

Forest Service Surface Use Regulations 36 CFR 228 Subpart A - "It is the purpose of these regulations to set forth rules and procedures through which use of the surface of National Forest System lands in connection with operations authorized by the U.S. mining laws which confer a statutory right to enter upon the public lands to search for minerals, shall be conducted so as to minimize adverse environmental impacts on National Forest System surface resources."

Federal Land Policy and Management Act of 1976 (FLPMA): Public lands will be managed recognizing the need for domestic sources of minerals.

Bureau of Land Management Surface Management Regulations (43 CFR 3809) were developed to prevent unnecessary or undue degradation of public lands related to mining, as directed by FLPMA.

These laws[2] mandate that the Agencies foster the development of economically sound and stable domestic mining, and encourage the orderly and economic development of domestic mineral resources to help assure satisfaction for industrial, security, and environmental needs. My decision is also guided from direction documented within the Regional Guide for the USDA Forest Service and the 1989 the Siskiyou National Forest Plan, as amended by the 1994 Record of Decision for Amendments to Forest Service...Planning Documents Within the Range of the Northern Spotted Owl (Northwest Forest Plan).

[2] These laws were considered in the decision to select Alternative 9. Other local, state and federal laws also apply to the project, including (but not limited to): the National Historic Preservation Act, the Migratory Bird Treaty Act, the Resource Conservation and the Recovery Act.

The mining proponent has provided some evidence that suggests that the Rough and Ready deposits may be smelted to produce stainless steel, if minor amounts of certain metals are added. However, the mining proponent has failed to disclose specific needs and sources for these additives.

The mining proponent has not disclosed where, how, or when the ore would be processed. He has stated that the ore may be shipped to an Asian smelter, or somewhere else, but no credible evidence has been provided that indicates either a domestic or overseas facility is available that could process the material profitably. The only smelter in the United States that processed nickel commercially was located at Riddle, Oregon, and it closed in 1998.

The mining proponent has stated that his operation will be economically feasible or it will not happen. He has also stated he does not need the bulk sampling in Alternative 9 to proceed. On February 10, 1997, his attorney wrote, "we already know that the metallurgical testing indicates that full scale production is economically feasible." (See FEIS Appendix D for selected correspondence between the mining proponent and the Agencies, including this and other letters).

His attorney wrote that the mining proponent is under no obligation to demonstrate the economics of the claim (see letter dated January 29, 1999). I agree that the mining proponent is under no obligation to disclose proprietary information. However, the mining proponent must at least be able to demonstrate the overall economics of the deposit and assure that the mining and processing method surpass some threshold of reasonableness, especially given the extreme values of the resources that may be lost or adversely affected. I can only consider documented information when making a decision. Nothing in the record substantiates that the mining proponent's proprietary process works or that the project is economically viable. The economics of the project as viewed by the Agencies has been fully disclosed to the proponent and public in the EIS, and remains unrefuted by any credible evidence.

The need to foster the development of economically sound and stable domestic mining must be considered in the context of this uncertainty. Alternative 9 will foster orderly development of these mineral resources, without incurring significant impacts to surface resources. It allows the proponent continuing opportunities to analyze, explore, and determine suitable and economic processes for future development (if they in fact exist), consistent with his rights under the 1872 General Mining Laws.

The full scale mining alternatives would have, in varying degrees, degraded valued public resources. The Proposed Action and other full scale mining alternatives are not the logical next step in the orderly development of the Rough and Ready Creek deposits. No Action would not have allowed the mining proponent to further develop his project and thus, would not have fostered the orderly development of mineral resources.

DECISION RATIONALE - FEIS ISSUES AND ALTERNATIVE COMPARISON

The FEIS describes the richness of the surface resources of the area. Chapters Three and Four of the FEIS document the high water quality, threats to Port-Orford-cedar from the introduction of *Phytophthora lateralis*, the botanical diversity and sensitive plants (including one plant listed as Endangered under the federal Endangered Species Act (ESA), the eligibility for Wild and Scenic River status, and the unroaded condition of much of the watershed. Rough and Ready Creek is home to anadromous fish that are listed under the ESA, or are candidates for that list.

The analysis area contains resources that are highly valued by the public. These values are relatively scarce, particulary when compared to the availability of nickel bearing ore world-wide. The West Fork Illinois River Watershed (including Rough and Ready Creek) was ranked #1 in Oregon for botanical diversity. The Wild and Scenic River Eligibility, presence of listed and sensitive species, proximity to Wilderness, unroaded areas and remarkable water quality are unique attributes of the project area.

The FEIS analysis incorporates information published in the 1997 West Fork Watershed Analysis and the 1993 Rough and Ready Creek Eligibility Study, Draft Species Management Guides for several rare plants, state plans for anadromous fish restoration, and other documents referenced in the body of the FEIS.

Discovery of additional natural resource values is likely with continued inventories and research in the affected watersheds. The same geologic, climatic, and evolutionary processes that developed the ore deposits are responsible for developing an extremely special and unique environment.

Full scale mining, including road development and road use proposed in the FEIS (the Proposed Action and Alternatives 6, 7, 8, 10, and 11), would drastically change the character of the landscape and put the surface resources on public lands at risk. Only No Action and Alternative 9 would not incur significant risk to these resources.

Soil Productivity, Slope Stability and Erosion

Alternative 9 will have little impact on soil productivity, erosion, and slope stability. About 5 acres will be disturbed in a 23,000 acre (approx.) watershed. The Proposed Action would have resulted in about 83 acres of total disturbance (pit development plus roads). Alternative 6 and 7 both had the greatest acreage of pits developed (35) and total ground (pits and roads) disturbed (87 acres). Alternative 8 has slightly fewer acres of pits developed (33) and less total ground (pits and roads) disturbed (73 acres). Alternative 10 would have disturbed about 85 acres from road and mine pit development. Alternative 11 would have reduced the total ground disturbance to 58 acres.

The erosion potential in Alternative 9 is similar to the "No Action" alternative. Some existing segments of road remain sources of sediment. The Proposed Action was predicted to produce 193 cubic yds. of sediment from road development and use. Alternative 6 was predicted to produce 19 cubic yds. of sediment from road development and use. Alternative 7 was predicted to produce 119 cubic yds of sediment from road development and use. Alternative 8 was predicted to produce 100 cubic yds of sediment from development and use of the Bench Road. Alternative 10 was predicted to produce 154 cubic yds of sediment from development and use of Wimer and Rock Creek roads and the Bench Road. Alternative 11 resolved this issue by eliminating all high risk road segments. Alternative 9 will incur no risk to slope stability. All full scale mining alternatives (except Alternative 8) would incur risk of slope instability associated with site D.

Alternative 9 was selected in part because it resolved these issues as well or better than the full scale mining alternatives. Alternative 11 may have resolved the sediment issue, but would have required access via the private Rough and Ready Creek Road, where a right-of-way or easement does not currently exist, and would have had other unacceptable impacts.

Stream Crossings, Stream Flow and Water Temperature

Alternative 9 will not directly impact Rough and Ready Creek. No stream crossings by equipment or vehicles are required or approved, thus the high water quality of the stream will be maintained. Full scale mining alternatives include many crossings of Rough and Ready Creek and its tributaries. The Proposed Action (PA) includes 6 crossings of the mainstem Rough and Ready Creek and 1 crossing on the South Fork of Rough and Ready Creek. These crossings would add sediment to the creek. Other full scale mining alternatives reduce (but do not eliminate) the impacts from the crossings. The following chart arrays the alternatives relative to the number of stream crossings required and estimated sediment delivery from their development and use.

	No Action	**PA**	**Alt 6**	**Alt 7**	**Alt 8**	**Alt 9**	**Alt 10**	**Alt 11**
Number of Main Crossings	Existing fords at Crossings #5, #6, #7.	7	3	4	2	0	1	1
Number of Tributary Crossings	Existing road crosses Alberg Creek 4 times, No Name once	9	3	3	3	*	1	3
Estimated Cubic Yd. Sediment from Crossings	0	585	35	39	16	<1	5	12

**One tributary crossing is on the Rock Creek route, limited trips with a tracked vehicle are possible.*

The Proposed Action would result in unacceptable impacts from the stream crossings. The alternatives largely mitigate these impacts (but may have unacceptable impacts to other issues).

Impacts from the use of water to support the mining operation were considered in the EIS. The following chart compares water use predicted for each alternative.

	No Action	PA	Alt 6	Alt 7	Alt 8	Alt 9	Alt 10	Alt 11
Gallons per day	0	40,264	43,643	43,362	37,449	0	40,264	27,030
Percent of Low Flow (a 4cfs late August value)	0	1.56	1.69	1.68	1.45	0	1.56	1.05

Removal of water from Rough and Ready Creek could slightly exacerbate already high summer water temperatures. Alternative 9 will use far less water than full scale mining alternatives, and will not affect water temperature in Rough and Ready Creek. Development of the road near Crossing #3 (associated only with the Proposed Action), and use of low water fords associated with the Proposed Action could also raise the water temperature in Rough and Ready Creek. Increases in water temperature are not consistent with the Clean Water Act.

Any future full scale mining Plan of Operations will need to deal with water use issues, and show how the project will meet Clean Water Act and other water quality regulations. The mining proponent has not provided evidence that he has a water right for surface water use (regulated by the Oregon Department of Water Resources), nor has he identified any other water source, or predicted the amount of water needed for the operation. These items are a required part of any mining Plan of Operations accepted by the Forest Service.

I selected Alternative 9 because it resolves these issues, while allowing continued exploration and analysis.

Nickel Concentrations in the Water

The existing condition of Rough and Ready Creek, and some nearby springs within the analysis area, indicates that nickel concentrations within the area may exceed Department of Environmental Quality Ambient Water Quality Standards. No Action and Alternative 9 would likely maintain the existing concentrations. Road development associated with the full scale mining alternatives could slightly increase the amount of nickel in area waters. Therefore, Alternative 9 is selected because it best resolves these issues as compared to full scale mining alternatives, while allowing continued exploration and analysis.

Hazardous Material Spills

Alternative 9 has a very low risk of hazardous material spills due to a lack of stream crossings and other mitigation required. The other action alternatives would have a higher risk of spills due to the numerous stream crossings (see previous chart). No Action would maintain the current low risk. Therefore, Alternative 9 is selected because it resolves these issues as compared to full scale mining alternatives, while allowing continued exploration and analysis..

Proposed, Endangered, Threatened and Sensitive/Special Status Species

Alternative 9 may potentially affect three sensitive plant species[3]. However, the other action alternatives would affect up to 12 species. Careful location of equipment and operating areas, and minimizing use of the "Rock Creek Route" will reduce these potential impacts. No Action would maintain the existing condition.

[3]FEIS Figure 22 is in error. The column for Alternative 9 should show that 10 sites and 3 species are potentially affected. The following chart is correct.

	PA	Alt 6	Alt 7	Alt 8	Alt 9	Alt 10	Alt 11
Number of Species on Haul Route/Mine Sites	57	64	84	60	3	81	38
Number of Plant Sites on Haul Route/Mine Sites	11	10	11	11	10	12	8

Alternative 9 will not likely adversely affect coho, cutthroat, chinook, or steelhead fish populations. All full scale mining alternatives would likely adversely affect these fish populations. The No Action alternative maintains current habitat conditions.

Therefore, Alternative 9 is selected because it best resolves these issues as compared to full scale mining alternatives, while allowing for continued exploration and analysis.

Port-Orford-cedar Root Disease and Noxious Weeds

The risk of spread of *Phytophthora lateralis* (root disease) and noxious weeds from Alternative 9 is very low and similar to No Action. Full scale mining alternatives have a much higher and longer lasting risk of spreading the Port-Orford-cedar (POC) root disease and noxious weeds, due to road development and use. Mitigation included for Alternatives 6, 7, 8, 10 and 11 would have reduced the risk of spread of root disease and/or noxious weeds, but would not have eliminated the risk. Alternative 9 maintains the current inaccessible nature of the area, which is one of the best ways to prevent spread of exotic weeds or pathogens, while allowing for continued exploration and analysis.

Northwest Forest Plan Standards and Guidelines

No Action and Alternative 9 would equally meet the Aquatic Conservation Strategy (ACS) objectives and Riparian Reserve Standards and Guidelines. There are some low-standard mining roads within the watershed that do not currently meet these standards and are a continuing source of degradation. Alternative 9 would maintain the existing condition relative to the ACS objectives and Riparian Reserve Standards and Guidelines. Some full scale mining alternatives would fail to meet standards, due to significant road development within Riparian Reserves, and associated risk of road failure, sediment delivery, and riparian habitat loss. The miles or road development within Riparian Reserves and numbers of stream crossings indicate the relative severity of impacts from the full scale mining alternatives:

	Alternatives					
	PA	**6**	**7**	**8**	**10**	**11**
Mi. New Road in Riparian Reserves (RR)	0.3	0	0.4	0.4	0.4	0
Mi. Haul in RR	4.6	2.4	3.1	1.8	1.4	1.1
No. Major Stream Crossings	7	3	4	2	1	1
No. Tributary Crossings	9	3	2	2	1	3

Some of the full scale mining alternatives could be designed to meet ACS Standards, however, they may

not resolve other issues considered in the EIS. No Action would not allow further mine development, and may not meet all Northwest Forest Plan Standards and Guidelines because it does not meet other legal requirements relative to mining. Alternative 9 provides for orderly development of a mining operation while meeting all Northwest Forest Plan and ACS Objectives, Standards and Guidelines.

Wild and Scenic River Eligibility

Alternative 9 (along with No Action) will not affect Rough and Ready Creek's eligibility for inclusion into the National Wild and Scenic River system. It will maintain the highest potential classification and Outstandingly Remarkable Values (ORV) described in the 1993 Rough and Ready Creek Wild and Scenic River Eligibility Study.

The maximum classification for Rough and Ready Creek in the vicinity of the creek crossings is *Scenic*. The multiple stream crossings under the Proposed Action and Alternative 7 would not have maintained that classification. All of the other alternatives would have maintained that classification. Forest Service policy is to maintain the classification while a stream is studied for its Suitability as a Wild and Scenic River (scheduled to be accomplished with the next Siskiyou National Forest Plan revision in 2002).

The high number of rare plant species growing within one-quarter mile of the main stem Rough and Ready Creek led to the identification of the Botanical/Ecological ORV. The haul route in Sections 14 and 15 may disturb rare plants within the eligible creek corridor. The Proposed Action and Alternatives 6 and 7 had the greatest potential to degrade the Botanical ORV.

I selected Alternative 9 because it maintains Wild and Scenic River classification and values while allowing for continued mine exploration and analysis.

Costs of Operations and Economic Viability

No Action is the least expensive alternative and would have no direct mining or ore haul costs. Full scale mining costs could reach nearly 4 million dollars when haul cost, road improvement and dust abatement costs are added. Alternative 9 is estimated to cost about 1 million dollars to implement. Estimated cost to implement the action alternatives is compared in the following chart:

	Alternatives						
	PA	**6**	**7**	**8**	**9**	**10**	**11**
Total Road Construction and Reconstruction Costs (Thousands)	$683	$722	$693	$580	$43	$770	$700
Cable Operation Initial Costs (Thousands)	0	0	0	0	0	$1616	$1616
Dust Abatement Costs (Thousands over Ten Years)	$310	$149	$222	$222	$1	$363	$149
Gates (in Dollars)	0	$2260	$2260	$2260	0	$2260	$2260
Haul Costs (Thousands)	$2080	$2800	$2236	$2127	$840	$870	$970

All of the mining alternatives are associated with negative present net values, and benefit to cost ratios below 1. The breakeven point (the price at which costs equal revenue) for the price of nickel and associated minerals such as cobalt and iron varies for the different alternatives. The Proposed Action's costs would equal its revenue if the world market reaches $3.75/pound for the price of nickel and associated minerals. In contrast, Alternative 7's breakeven point is at $4.02 per pound. The proponent would receive a reasonable rate of return for the investment on all alternatives if the price for nickel and associated minerals would reach $5.54/pound. The highest price for nickel within the last five years was $3.73/pound in 1995 and the price fell to $1.95/pound in August, 1998 (lowest in a decade). Long term projections are for prices to remain below $3.00 per pound (Anaconda Nickel Limited 1998). The other minerals, such as iron, cobalt, and chrome are not predicted to make up the difference needed for a reasonable economic development. The following chart provides alternative comparison relative to this issue:

	No Action	**PA**	**6**	**7**	**8**	**9**	**10**	**11**
Present Net Value (Millions)	0	-$10.1	-$10.6	-$10.2	-$9.5	-0.97	-$9.0	-$7.5
Benefit to Cost Ratio	n/a	0.58	0.57	0.57	0.57	0.10	0.55	0.59

Full scale mining alternatives would resolve the economic uncertainty by allowing full scale development, but only with significant impacts to critical resources. Alternative 9 will resolve the uncertainty by allowing the opportunity for the proponent to demonstrate the sound economics of his proposal, with little or no impact on critical resources. The "No Action" alternative would not allow the proponent to resolve the economic uncertainty. Alternative 9 is selected because it is the only alternative that protects surface resources and resolves economic uncertainty.

Effects on Residents

All alternatives except No Action could result in adverse effects to residents. Several families reside on or near the various haul routes. While some of the road improvements could lead to increased property values, some people would leave the area, and others might not move in, given the loss of personal values that could occur. The following chart provides a comparison of the factors that may lead to adverse effects on residents:

Alternative	Number of Houses within 100 feet of ore haul	Number of Round Trips	Helicopter Use
Proposed Action	0	3,390	No
6	4	5,700	No
7	0	3,390	No
8	0	3,150	No
9	0	670 for 120 hours flight time	Yes
10	22	3,100	No
11	4	1,940	No

Alternative 9 will have short-term effects on residents due to the disturbance expected from the helicopter operations. This will be mitigated by keeping the flight path 1000 feet away from any residences and by restricting operations to between 7 am and 7pm (if other legal requirements apply, they will supercede these stipulations). This short-term effect could last up to 4-6 weeks over five years (120 hours of flight time). Alternative 9 also increases safety hazards in the area. Keeping the public away from operations (the area within 1000 feet of the flight path would be closed to the public) would mitigate some of the safety risk. All legal requirements related to safety and noise will be met. Property values are not expected to be affected by Alternative 9.

The decision to select Alternative 9 is made with recognition that residents may be adversely affected by the helicopter operations. These impacts are mitigated to some extent, and will be within legally acceptable limits. These impacts are not long lasting and are reasonable, given the purpose and need for action.

Visual Quality, Recreation and Interpretive Development

All of the full scale mining alternatives would affect visual quality. Under Alternative 9, the sites approved for sampling will be in areas that are already disturbed. Ore haul in full scale mining alternatives would impact people using the lower reaches of the watershed (low to moderate numbers of recreationists currently use the area for swimming, sight-seeing, and botanical exploration). Alternative 9 could also impact a person's recreation experience during helicopter operations. The area below and adjacent to the flight path would be closed to public entry. This would mitigate for safety hazards but would also eliminate use of the most popular areas within the watershed during helicopter operations.

Interpretive development could be affected by full scale mining alternatives. State Byway Committees in California and Oregon include Rough and Ready Creek in their interpretive plans for the Byway and concerns have been expressed that full scale mining could threaten these and other efforts to attract tourism. Alternative 9 is very unlikely to have these effects.

The decision to select Alternative 9 is made with recognition of short term, minor adverse effects on visual quality and recreation. No Action would maintain the existing condition relative to these issues.

Roadless Character

Alternative 9 will retain the roadless character of the area. No Action would also maintain these conditions. All of the full scale mining alternatives propose ore haul and road construction and improvement within the roadless portion of the analysis area. These actions would degrade the social and ecological values associated with roadless areas. The values of roadless areas have been increasingly acknowledged for biological diversity, fish and wildlife habitats, water quality, recreation, spiritual and other amenity values, and other purposes.

The following chart compares the alternatives relative to the roadless character issue:

	NA	PA	Alt 6	Alt 7	Alt 8	Alt 9	Alt 10	Alt 11
Miles of Road Construction in SK	0	0.25	3.8	4.2	4.2	0	1.0	1.25
Estimated Miles Haul in SK	0	7.0	10.0	10.0	9.0	0	6.0	5.0

I selected Alternative 9 because it preserves the roadless character of the area while allowing for continued mine exploration and analysis.

ENVIRONMENTALLY PREFERABLE ALTERNATIVE

The No Action Alternative is the Environmentally Preferable Alternative. The National Environmental Policy is described in the National Environmental Policy Act of 1969, Sec. 101 (a). Section 101 (a) states that the purpose of the environmental policy is to:

> (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
> (2) assure for all Americans safe, healthful, productive and esthetically and culturally pleasing surroundings;
> (3) attain the widest range of beneficial used of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
> (4) preserve important historic, cultural and natural aspects of our national heritage and maintain wherever possible, an environment which supports diversity and variety of individual choice;
> (5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities;
> (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Both No Action and Alternative 9 meet these purposes. No Action would result in no mining activity and the fewest adverse environmental effects of all the alternatives considered in detail within the FEIS. No Action is the most conservative and preservation-oriented alternative. It excludes a beneficial use, mining, but would pose the least risk of undesirable consequences. No Action would avoid removing non-renewable mineral resources. Alternative 9 would better meet purpose (4) above, because it provides for the individual choice of the mining proponent, while preserving the important characteristics of the Rough and Ready Watershed. Both alternatives permit high standards of living and a wide sharing of life's amenities.

PUBLIC INVOLVEMENT

Scoping for this Proposed Action began in 1993, after the Illinois Valley District Ranger's received of the Plan of Operations submitted by the mining proponent. The District Ranger found that an Environmental Impact Statement (EIS) would be required to meet National Environmental Policy Act regulations, due to the potential for adverse effects from the action revealed during scoping (the mining proponent filed an appeal, but the finding that an EIS was required was affirmed).

Funding to initiate the EIS became available in 1997. A Notice of Intent was published in the Federal Register in April of 1997. A "scoping letter" was also sent to all people or groups on the district's "Citizen Mailing List" and those who otherwise expressed interest in this project (including Federal, State, and local agencies, any affected Indian tribes, and the permit applicant, and other individuals). The Forest Service and Bureau of Land Management decided to cooperate on the EIS, since the mining proponent had also submitted a Plan of Operations for stockpiling ore within Bureau of Land Management areas, and the two Plans were connected. The Forest Service became the lead agency in the analysis, since the majority of the activities would occur on National Forest System lands.

A Draft Environmental Impact Statement (DEIS) was prepared and circulated based on the many public issues related to the project. A Notice of Availability for the DEIS was published in January of 1998 and the document was available for public comment until May of that year. The District Ranger received approximately 4,500 letters, along with numerous petitions signed by thousands of people. The letters generally expressed a preference for No Action, based on perceived inadequacies in the EIS and the Plan of Operation's potential for significant impacts. Fewer than 10 letters were received that expressed support for any alternatives besides No Action. These sentiments were also expressed through meetings, oral hearings, and other discussions.

I decided to prepare a Supplemental Draft Environmental Impact Statement (SDEIS) due to changed conditions and to respond to public comment. A Notice of Availability for the SDEIS was published in November of 1998[4] and the document was available for public comment through January of 1999. About 500 people commented by letter, and 1600 people reportedly contacted World Wildlife Fund to express their dismay about the project. Several people expressed that they were encouraged by a shift in the Preferred Alternative from full scale mining (described in the DEIS) to sampling (first proposed as an alternative in the SDEIS). Most stated that their preference remained No Action. Some letters expressed outrage that the Federal Government would analyze the Plan of Operation as submitted, particularly because the mining proponent had not disclosed the processing location. Appendix B in the FEIS is a detailed (155 pages) summary of public comments received on both the DEIS and SDEIS, and Agency responses. Public involvement records are in the analysis file.

FINDINGS

This decision is consistent with the Siskiyou National Land and Resource Management Plan (Forest Plan), as amended by the Record of Decision for Amendments to Forest Service...Planning Documents Within the Range of the Northern Spotted Owl (Northwest Forest Plan). The Siskiyou National Forest Plan includes discussions about mining and their potential effects on surface resource values. Pages IV-55 and IV-56 of the Siskiyou National Forest Plan display the general Standards and Guidelines associated with mining. In addition, there are additional Standards and Guidelines that apply to the various land allocations. The Northwest Forest Plan Record of Decision, pages C-34 and C-35, describes still other Standards and Guidelines. The Final EIS demonstrates the compliance with these Standards and Guidelines throughout Chapters Two and Four. This decision is also consistent with all of the laws and regulations listed previously in this Record of Decision.

[4]Page 12 of the FEIS erroneously states that a Notice of Availability for the Supplemental DEIS was published in January 1998.

ADMINISTRATIVE REVIEW OR APPEAL OPPORTUNITIES

The decision is subject to appeals under 36 CFR 215 and 36 CFR 251. People who have commented or otherwise expressed interest may appeal this decision under 36 CFR 215. A written Notice of Appeal must provide sufficient evidence and rationale to show why the Forest Supervisor's decision should be remanded or reversed. The appeal must relate to the part of the decision that affects National Forest lands.

The mining proponent also has appeal rights under 36 CFR 251. The proponent may appeal under 215 or 251, but not both. Appeals under 251 must follow the filing procedure in 36 CFR 251.88 and must meet all the requirements in 36 CFR 251.90, including a statement of the facts of the dispute and issues raised by the appeal. The appeal must include specific references to any law, regulation or policy that the proponent believes has been violated.

Appeals under both 215 and 251 must be postmarked or hand delivered within 45 days of the date of publication of the notice of decision for this project in the Grants Pass Daily Courier. Under 36 CFR 251, the mining proponent must simultaneously submit a copy of the appeal to the Forest Supervisor.

Appeals should be addressed to:

Regional Forester
ATTN: 1570 APPEALS
Pacific Northwest Region
PO BOX 3623
Portland, OR 97208-3263

Forest Supervisor
Siskiyou National Forest
PO Box 440
Grants Pass, OR 97528

IMPLEMENTATION

The Forest Service 36 CFR 215 appeal regulations require that implementation of the project be automatically stayed until 5 days after the close of the appeal period, unless appeals are filed. If there is an appeal, the decision cannot be implemented until 15 days following the date of appeal disposition.

Implementation of this decision requires preparation and approval of a Plan of Operations (the mining proponent must prepare a Plan of Operations that fully incorporates all of the requirements in this Record of Decision; the Agencies may assist to assure compliance). The mining proponent must specify the ore processing site and method in the Plan of Operations. If a new facility is needed, ground disturbance would not be approved until there is evidence that the facility is built and is capable of processing the mined material. Additional environmental analysis may be required before any plan is approved, depending on the potential effects of the processing. The Plan of Operation will be valid for the five years following initial approval.

CONTACT PERSON

For further information, contact:

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J. Michael Lunn **Date**

Siskiyou National Forest Supervisor